

Serial Number 09/681,076
Request for Continuing Examination (RCE)
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CANCELLED CLAIMS: 22-39

NEW CLAIMS:

40) A method for producing a lightweight starting stock for gun frames and gun components comprising the following sequence:

- B1 ↓
- a) mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet, *He*
 - b) extruding said billet to provide starting stock,
 - c) forging said starting stock to provide a gun frame or gun component,
 - d) solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
 - e) quenching said gun frame or gun component to provide a quenched gun frame or gun component
 - f) artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

41) The method of claim 40 wherein said gun frame or gun component has a yield strength value of at least 90 ksi. *He*

42) The method of claim 40 wherein secondary machining is performed on the forged gun frame or gun component. *He*

43) The method of claim 40 wherein billet is homogenized prior to extrusion. *He*

44) A method for producing a lightweight starting stock for gun frames and gun components comprising the following sequence:

- steps in*
- a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from a group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet, *He*
 - b. forging said billet to provide a gun frame or gun component,
 - c. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,

- d. quenching said gun frame or gun component to provide a quenched gun frame or gun component
- e. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

6 ^{44 5} 45) The method of claim 5 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.

7 ^{44 5} 46) The method of claim 5 wherein secondary machining is performed on the forged gun frame or gun component.

8 ^{44 5} 47) The method of claim 5 wherein billet is homogenized prior to forging.

9 ^{44 5} 48) A method for producing a lightweight starting stock for gun frames and gun components comprising the following sequence:

- a. mixing alloying elements into aluminum with the alloy composition containing 6.2 to 9.0 wt% Zn, 1.0 to 3.0 wt% Mg, 0 to 2.5 wt% Cu and 0.02 to 0.50 wt% of at least one grain refining element selected from group consisting of Zr, Sc, Cr, Mn, Ti and Hf and casting said elements to provide a billet, ^{steps in}
- b. extruding said billet to provide starting stock,
- c. machining said starting stock to provide a gun frame or gun component,
- d. solution heat treating said gun frame or gun component to provide a solution heat treated gun frame or gun component,
- e. quenching said gun frame or gun component to provide a quenched gun frame or gun component
- f. artificial aging said gun frame or gun component to provide and artificially aged gun frame or gun component wherein said gun frame or gun component has a yield strength value of at least 80 ksi.

10 ^{44 9} 49) The method of claim 9 wherein said gun frame or gun component has a yield strength value of at least 90 ksi.

11 ^{44 9} 50) The method of claim 9 wherein secondary machining is performed on the machined gun frame or gun component.

12 ^{44 9} 51) The method of claim 9 wherein extruded starting stock is subjected to solution heat treatment, quenching, artificial aging and then subsequently machined.

13 ^{44 9} 52) The method of claim 9 wherein billet is homogenized prior to extrusion.